mountain stream, it is not hard to see how this epithet came to be associated with, and applied to, the stream itself, which is not regarded apart from its peculiar surroundings. The steep sides are, in fact, the characteristic feature of the ordinary Highland *allt*. THE REVIEWER.

The Striped Hawk-Moth.

WITH reference to the paragraph in NATURE of August 18 (p. 389) on the striped hawk moth, on May 23 this year I found a specimen alive in a thick bed of lily-of-the-valley; it had just emerged, and had never flown. Warmwell is two miles from the sea as the crow flies; possibly the parent was a migrant, but the moth I found had passed through its metamorphosis in this country. The insect lived twelve hours after capture, and is now in the collection of Mr. O. Picard-Cambridge, of Bloxworth.

Warmwell, Dorchester. ROSE HAIG THOMAS.

Mountains and Mankind.

I SHALL be obliged if you will allow me to correct the following errata in my address to Section E of the British Association. For "Watson" and "Tokio" read Weston and Kobi (p. 429, column 2).

September 5. DOUGLAS W. FRESHFIELD.

[The errors occur in the copy of the address reprinted in NATURE.—EDITOR.]

BRITISH CHEMICAL EXHIBIT AT THE ST. LOUIS EXHIBITION.[1]

THE Royal Commission appointed to arrange the British exhibits for the St. Louis Exhibition have evidently, from the catalogue before us, carried out their difficult task with great care and in a most successful manner. We would that all catalogues were written in the extremely interesting and vivid style of the one to which we have referred. The products treated of in the catalogue are drawn up in alphabetical order, and at the end of the description of each substance, or group of substances, the names of the exhibitors are placed; the exhibitors are also arranged in alphabetical order at the end of the book.

The catalogue is written in the form of a history of the various manufacturing processes described therein. First and foremost we come to a most interesting and detailed account of the alkali industry, from the time of its inception to the present day. The reader is carried historically through the building up of the Le Blanc process—and the tragic fate of Le Blanc, its founder—the ammonia soda process, Chance's sulphur recovery process, and so on. Many details, which are not the common property of text-books, as to the difficulties and failures and final success are included, which makes the narrative of exceptional interest. Before Solvay's time, several patents had been taken out which embodied the principles of his ammonia soda process, but he, unaware that others had worked upon the subject, experimented and patented the process, and we are shown in his own words what a blow he received on discovering that he was not the first in the field:—

"What was our astonishment in discovering . . . I was no longer the inventor of the reaction and its industrial use had already tempted other investigators. It was a hard blow to me."

Here the narrator intervenes with the pertinent words: "Happily Solvay was young," and finally success attended his efforts. In so far as the ammonia soda process affects the British exhibits, we have to thank the indefatigable energy of Dr. Mond.

As a natural sequence the manufacture of sulphuric acid is treated of in the same section as that devoted to the alkali industry, and after being informed that sulphuric acid was first made by Ward at Richmond in 1740, we are taken through the gradual development of the chamber process, and then introduced to the contact process, which may be said to have been originally founded on an experiment of Humphrey Davy in 1817.

The section on alum is very interesting, and one notices how greatly manufacturers in this country are indebted to the acumen of Peter Spence, of Manchester.

One of the most interesting and suggestive sections is that dealing with the coal-tar products. In his report on the 1862 Exhibition, Hofmann spoke with sanguine eloquence of the bright prospects before the coal-tar colour industry in this country. The brilliant anticipations which Hofmann made for England have, alas! not been substantiated, for where we have sown others have reaped. The writer of this section endeavours to trace some of the causes which underlie the loss of the colour industry to England—such as the inadequate patent laws, want of research, which really means want of sufficient capacity for looking ahead.

To the electrochemical industry are devoted nine pages of the catalogue, which, commencing with an historical survey of the foundation of electrochemistry, passes on to deal with hypochlorites, chlorates, caustic alkali, and sodium. Then follows a description of the copper refining processes, and on p. 87 we are told that other metals, such as gold and silver, have been purified by electrolytic processes. As these have not been done in the United Kingdom, this is evidently in the nature of a hint to British electrochemists. A passing reference is made to the manufacture of calcium carbide, which, we regret to say, is at present not manufactured in this country.

We have only picked out a few of the subjects treated of in the catalogue; there are, of course, many others, such, for example, as explosives, the candle industry, soap, oils and colours, and so on.

There are also a good many scientific exhibits, among which may be noted Sir James Dewar's low temperature research exhibit, in which the complete plant, as employed at the Royal Institution for the production of liquid and solid hydrogen, is shown. Photographs of spectra by Mr. E. C. C. Baly, exhibits from the Lister Institute of Preventive Medicine, also a very complete exhibit from the Wellcome Research Laboratories, and many others which space forbids us to mention.

We do not know whether the catalogue is on sale in this country, but we recommend all interested in the manufacturing and scientific advancement of the country to endeavour to procure a copy; because the exhibits demonstrate that, in spite of the keen competition of Germany and other nations, Great Britain can still claim to be high up in brilliant achievements in chemical and allied sciences. F. M. P.

THE LIMNOLOGICAL STATIONS ON THE LAKE OF BOLSENA.

TWO years ago the executive committee of the Italian Geographical Society determined to undertake the desirable work of preparing an exhaustive monograph on one of the lakes of Italy, and they very naturally selected the Lake of Bolsena for the purpose. Its situation within easy reach of Rome,

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[1] Catalogue of British Exhibits; International Exhibition St. Louis, 1904. Department C, Liberal Arts; Chemical and Pharmaceutical Arts. Issued by the Royal Commission.)

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its size, depth, and geological relations, the beauty of its environment, and the unique charm of the two picturesque volcanic islets Martana and Bisentina, all combine to render the lake attractive.

Before the preliminary operations of the Geographical Society, very little was known about the lake except with regard to the geology and morphology of its basin; the contours of the bottom had been carefully mapped by De Agostini, who had made no fewer than 3000 soundings. No regular observations of the seasonal temperatures of its waters or of the variations in their level, of *seiches* or of lacustrine plankton, had ever been carried out.

From a preliminary report prepared by Prof. Luigi Palazzo,[1] we learn that limnological stations equipped with Sarasin's limnograph and with other instruments have been established on opposite sides of the lake at Bolsena and at Marta, and that at chosen points in the immediate vicinity five meteorological stations are to yield continuous records of the rainfall and air temperature. A gauge for measuring the height of the water has also been fixed to a pier in the Fiume Marta.

One of the most interesting phenomena of which a continuous record will be kept are the *sesse* or *seiches*, the rhythmical oscillations of the surface of the lake, which have a regular period of 12 to 15 minutes, and are more conspicuous at Marta than at Bolsena, apparently on account of the position of the former village nearer the major diameter of the lake, and on account of differences in the declivity of the bottom. A rise of the water of 7 inches at Marta was noticed to be correlated with a rise of only 4 inches at Bolsena. On occasions the rise of water may amount to a foot, and the seiches are then so noticeable that the common folk, in their expressive dialect, declare that the lake is panting (*trenfia*).

FIG. 1.—Isola Martana.

We hope that the full reports on the physical problems connected with the lake may soon appear, and that the investigation of the plankton will not be forgotten.

R. T. GÜNTHER.

NOTES.

IT is proposed to fix a standard time for use upon all Indian railways and telegraphs, which shall be exactly 5½ hours in advance of Greenwich time, and to fix for Burma a standard 6½ hours in advance of Greenwich. The Government of India has intimated that it is in favour of the adoption of the new standard for general as well as for railway and telegraphic purposes, and is prepared to cooperate in any movement with this end in view; but as the matter is one upon which the local communities should be consulted, the opinions of the Chambers of Commerce upon the proposals are being sought by the Government.

THE death is announced of Dr. Petr Petrovic van der Vliet, emeritus professor of physics at the University of St. Petersburg, aged sixty-five.

AT the beginning of next month Prof. H. Battermann, observer at the Berlin Observatory, will take the position of professor of astronomy at Königsberg University, and director of the observatory there.

IN a message from Ponta Delgada (Azores) on September 1, Captain Scott states that the Antarctic ship *Discovery* may be expected to arrive at Spithead about September 10.

A LIFE-SIZED bronze bust of the late Sir Richard Temple was unveiled last week in the parish church of Kempsey, near Worcester, by the Earl of Coventry, Lord Lieutenant of Worcestershire. The inscription is as follows:—"The Right Hon. Sir Richard Temple, Bart., G.C.S.I., C.I.E., D.C.L., LL.D., F.R.S., sometime Governor of Bombay and Finance Minister of India, and M.P. for Evesham and Kingston."

THE Chancellor of the Exchequer has appointed the following gentlemen to serve as members of a committee to inquire into the use of duty-free alcohol for industrial purposes:—Sir Henry Primrose, K.C.B., C.S.I., chairman; Sir William Crookes, F.R.S.; Sir W. H. Holland, M.P.; the Hon. J. Scott-Montagu, M.P.; Mr. Lothian D. Nicholson; Dr. W. Somerville; Dr. T. E. Thorpe, C.B., F.R.S.; and Mr. Thomas Tyrer.

THE fifteenth annual general meeting of the Institution of Mining Engineers will be held at Birmingham on September 14. The following are among the papers to be read, or taken as read:—The mining department of the University of Birmingham, Prof. R. A. S. Redmayne; coal-mining in Asturias, Prof. Henry Louis; the problem of Gob-fires, Mr. George Farmer; an improved apparatus for laying the dust in coal-mines, Mr. J. Creswell Roscamp; mine-surveying instruments, part ii., Mr. Dunbar D. Scott; and the problem of dynamic balance, Mr. E. H. Roberton.

THE latest proceedings of the Indian Tea Association contain several items of interest in connection with the proposed scientific experimental station in Assam. We learn from the *Pioneer Mail* that the scientific adviser of the association recently explained his proposals for the permanent location of his assistant in Assam, for the provision of a laboratory for him, and the initiation of experiments in tea culture under his direct supervision and control. An offer has been made by the agents of the Scottish Assam Tea Company to provide a small bungalow and tea for experiment in the immediate neighbourhood of the bungalow, and further land for experiments as required. It was decided to accept the offer of the Scottish Assam Tea Company, and arrangements have been made for the erection of a laboratory.

IN connection with the recent announcement of the death of the Rev. George Pirie, LL.D., professor of mathematics in the University of Aberdeen, the following particulars may be of interest. Dr. Pirie was born at Dyce on July 19, 1843, being the eldest son of the Very Rev. Principal Pirie. His early years were spent at Aberdeen Grammar School,

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[1] "La Stazione Limnologica di Bolsena." Pp. 19; 9 figs. 1 pl. (*Boll. Soc. Geogr. Ital.*, v. 1904.)

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